



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,227	01/27/2006	Michael Guggemos	36605	3740

7590 06/15/2009
John F McNulty
Paul & Paul
2900 Two Thousand Market Street
Philadelphia, PA 19103

EXAMINER

VAN, LUAN V

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

06/15/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,227	Applicant(s) GUGGEMOS ET AL.	
	Examiner LUAN V. VAN	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-25 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) 24,25 and 28-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>January 27, 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-23, in the reply filed on May 15, 2009 is acknowledged. The traversal is on the ground(s) that the combination of features in the invention is adapted to have a size that permits constant electrical contact with a contacting electrode in order to achieve an optimal surface treatment. This is not found persuasive because US patent 5425862, as cited in the previous office action, teaches that the length of the individual electroplating chambers is governed by the permissible voltage drop within the plastic film and that the spacing between the electrodes is chosen so that the voltage drops do not result in nonuniform electroplating (column 2 lines 58-68). As such, this technical feature is taught by the prior art and hence the apparatus and method claims lack a unity of invention. Therefore, the restriction is maintained.

The requirement is still deemed proper and is therefore made FINAL.

Claim Status

Claims 1-2 and 5-23 are pending in the present application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 16 recites rinsing facilities to continuously or intermittently rinse the contacting electrode. However, the specification does not provide enablement for rinsing the contacting electrode continuously or intermittently.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 and 5-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "so close" and "so short" in claim 1 is a relative term which renders the claim indefinite. The terms "so close" and "so short" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Similarly, the terms "such a small" and "so small" in claim 12, and the term "so close" in claim 14 are indefinite for the same reasons.

Claim Rejections - 35 USC § 102

Art Unit: 1795

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 8, 9, 11, 12, 17-20, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartmann et al. (US patent 5425862).

Regarding claim 1, Hartmann et al. teaches a device for electroplating a substrate, said device comprising: a) at least one arrangement, comprising at least one electrode (9-16, Fig. 1) for contacting the work pieces (1) and at least one electrolysis region in a respective one of which at least one counter electrode (24, 25) and the work pieces (1) are in contact with the processing liquid, characterized in that b) the at least one contacting electrode (9-16) is disposed outside of the at least one electrolysis region and is not in contact with the processing liquid, and c) the at least one contacting electrode (9-16) and the at least one electrolysis region are spaced so close together that small electrically conductive structures can electrolytically be treated (i.e., the contacting electrode and electrolysis region of Hartmann et al. is deemed to be spaced "so close" together since such terminology is relative), further characterized in that d) at least two contacting electrodes (9-16) are provided, at least one of them being disposed on one side of the electrolysis region and the at least other one on the other side of the electrolysis region (i.e., the electrodes 9-16 are provided on both sides of the electroplating chambers 6-8, see Fig. 1), and e) the electrolysis region is so short that the electrically conductive structures are in constant electrical contact with one of the

Art Unit: 1795

contacting electrodes (9-16). Since the instant claim is directed to an apparatus, the limitation directed to the conductive structures on surfaces of a work piece is not given patentability weight since it is directed to a material work upon by the apparatus.

Furthermore, the apparatus of Hartmann et al. can be used to electroplate conductive structures of any length, therefore the spacing of the electrodes and the electrolysis region relative to the conductive structures does not further limit the apparatus of the instant claim.

Regarding claim 2, the apparatus of Hartmann et al. is structurally capable of electroplating the conductive structure of the instant claim. Furthermore, the instant claim is directed to a material or article worked upon. "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). MPEP 2115.

Regarding claim 5, Hartmann et al. teaches that the device comprises at least one processing module (6-8, Fig. 1) containing the processing liquid and the at least one counter electrode (24), the work pieces (1) being conveyed there through in a horizontal direction of transport, the at least one processing module (6-8) comprising, on the entrance and on the exit side thereof respectively, at least one passage for the work

Art Unit: 1795

pieces (1) to enter and to exit said module and the at least one contacting electrode (9-16) being disposed on the passages.

Regarding claim 8, Hartmann et al. teaches partition members (20, 22) which comprise passages and sealing members (20, 22) for passage of the work pieces (1), the partition members being disposed between the at least one contacting electrode (9-16) and the processing liquid, said sealing members (20, 22) being disposed in such a manner that processing liquid can be prevented from coming into contact with the at least one contacting electrode (9-16).

Regarding claim 9, Hartmann et al. teaches that the sealing members are selected from the group comprising squeezing rollers (column 9 line 52).

Regarding claim 11, Hartmann et al. teaches roller contacts (column 3 lines 33-35).

Regarding claim 12, since the dimensions of the instant claim is relative, the apparatus of Hartmann et al. meets the limitation.

Regarding claim 17, Hartmann et al. teaches that the electrodes are elongated and are oriented substantially parallel to the conveying path (Fig. 1).

Regarding claim 18, Hartmann et al. teaches that the contacting electrodes are cathodically polarized since the substrate is being electroplated.

Regarding claim 19, the anode of Hartmann et al. is insoluble since it does not dissolve.

Regarding claim 20, the anode of Hartmann et al. is a flood anode since it has holes for allowing a passage of the plating solution.

Art Unit: 1795

Regarding claims 22 and 23, Hartmann et al. teaches a first and second storage facility 2 and 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1795

Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al.

Hartmann et al. teaches the apparatus as described above. Hartmann et al. differs from the instant claims in that the reference does not explicitly teach whether the contacting electrodes are secured to the partition wall or the electrodes are disposed on a common carrier frame.

However, since Hartmann et al. teaches that the contacting electrodes are positioned outside of the electroplating chamber, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have secured the electrodes on any walls outside of the plating chamber in order to prevent the plating solution from contacting the electrodes. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed the contacting electrodes and counter electrodes on a common carrier frame in order to facilitate construction of the apparatus.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. in view of Hirt et al. (US patent 4282073).

Hartmann et al. teaches the apparatus as described above. Hartmann et al. differs from the instant claims in that the reference does not explicitly teach whether the conveying path leads into the surface of the processing liquid. It appears that the instant claims are directed to vertically immersing the substrate into the processing liquid in a plating tank.

Art Unit: 1795

Hirt et al. teaches an apparatus for continuously electroplating a strip substrate in a plurality of plating tanks wherein the substrate is vertically immersed into the plating tank.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Hartmann et al. using the conveying path of Hirt et al., because it would enable the continuous plating of a strip substrate.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. in view of Okinaka et al. (US patent 4469564).

Hartmann et al. teaches the apparatus as described above. Hartmann et al. differs from the instant claims in that the reference does not explicitly teach a non-conductive ion permeable coating.

Okinaka et al. teaches an electroplating copper process and apparatus comprising a cation permeable membrane surrounding an anode so as to prevent decomposition of additives in the electrochemical bath (Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the membrane of Okinaka et al. in the apparatus of Hartmann et al., because it would prevent decomposition of additives in the plating bath (Abstract of Okinaka et al.).

Art Unit: 1795

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. in view of Avellone (US patent 4401523).

Hartmann et al. teaches the apparatus as described above.

Regarding claim 15, Hartmann et al. differs from the instant claims in that the reference does not explicitly teach whether the conveying path is inclined. Avellone teaches electroplating apparatus for plating a metallic strip wherein the strip path is inclined to the horizontal. This improves the plating uniformity and performance (column 11 lines 1-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the inclined conveying path of Avellone in the apparatus of Hartmann et al., because it would improve the plating uniformity and performance (column 11 lines 1-6 of Avellone).

Regarding claim 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a rinsing facility for cleaning the contacting electrodes of Hartmann et al. in order to remove the plating solution from the contacting electrodes.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAN V. VAN whose telephone number is (571)272-8521. The examiner can normally be reached on M-F 9:30-6:00.

Art Unit: 1795

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Luan V Van/
Examiner, Art Unit 1795
June 10, 2009